UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte SCOTT WILLIAM DAVIS

Appeal No. 2005-0682
Application No. 10/064,682

ON BRIEF

Before FRANKFORT, NASE, and BAHR, Administrative Patent Judges.

NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection (mailed January 28, 2004) of claims 1 to 26, which are all of the claims pending in this application. In the brief (filed July 1, 2004), the appellant waived the appeal with respect to claims 1 to 10. Accordingly, the appeal is dismissed with respect to claims 1 to 10. Claims 11 to 26 remain on appeal.

We REVERSE.

BACKGROUND

The appellant's invention relates generally to a passenger vehicle brake controller and more particularly to a passenger vehicle trailer brake controller (specification, p. 1). A copy of the claims under appeal is set forth in the appendix to the appellant's brief.

Claims 11 to 26 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,620,236[1] to McGrath et al. (McGrath).

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejection, we make reference to the answer (mailed September 8, 2004) for the examiner's complete reasoning in support of the rejection, and to the brief (filed July 1, 2004) and reply brief (filed November 12, 2004) for the appellant's arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the McGrath patent, and to the respective

[1] Issued April 15, 1997.

positions articulated by the appellant and the examiner. As a consequence of our review, we will not sustain the rejection of claims 11 to 26 for the reasons which follow.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Verdegaal Bros. Inc. v. Union Oil Co., 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir.), cert. denied, 484 U.S. 827 (1987). The inquiry as to whether a reference anticipates a claim must focus on what subject matter is encompassed by the claim and what subject matter is described by the reference. As set forth by the court in Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983), cert. denied, 465 U.S. 1026 (1984), it is only necessary for the claims to "'read on' something disclosed in the reference, i.e., all limitations of the claim are found in the reference, or 'fully met' by it." While all elements of the claimed invention must appear in a single reference, additional references may be used to interpret the anticipating reference and to shed light on its meaning, particularly to those skilled in the art at the relevant time. See Studiengesellschaft Kohle v. Dart Indus., Inc., 726 F.2d 724, 726-727, 220 USPQ 841, 842-843 (Fed. Cir. 1984).

Claims 11 and 20 read as follows:

11. A trailer brake controller for use in a passenger vehicle for controlling a towed trailer comprising;

a control element positioned within the passenger vehicle and in communication with a vehicle anti-lock braking system,

a vehicle speed input providing vehicle speed from said vehicle anti-lock braking system to said control element;

a vehicle brake pressure input providing vehicle brake pressure from said anti-lock braking system to said control element; and

a trailer brake output, said trailer brake output controlled by said control element in response to said vehicle speed input and said vehicle brake pressure input.

20. A method of controlling a trailer braking system comprising:

determining vehicle speed and vehicle braking pressure through communication with an anti-lock braking system on the vehicle;

relaying the vehicle speed and vehicle braking pressure to a control element positioned on the vehicle;

using said vehicle speed and vehicle braking pressure to determine a trailer brake output signal; and

sending said trailer brake output signal to the trailer braking system.

McGrath's invention relates in general to an electronic controller for energizing electrically operated brakes in a towed vehicle and, in particular, to an electronic brake controller which is responsive to the brake actuation of the towing vehicle for supplying electric current to the towed vehicle brakes. The electronic brake controller includes a sensor for producing a brake control signal which is representative of the desired braking of the towed vehicle. The controller also includes a control means responsive to the brake control signal for generating an output signal for actuating the electric wheel brakes of the towed vehicle. The output signal is related to the brake control

signal by a controller gain, which is incrementally adjustable between a plurality of individual gain settings. The controller further includes an operator actuated means for selecting one of the plurality of gain settings and a display means for indicating to the operator the selected gain setting.

Figure 1 of McGrath is a schematic diagram illustrating an electric brake system for a towed vehicle (not shown) which utilizes an electronic brake controller 11. The brake controller 11 is typically located in a towing vehicle (not shown), usually being mounted beneath the towing vehicle dashboard. When actuated, the controller 11 functions to supply an electric current through line 12 to energize electric brakes 13 and 14 which brake the wheels of the towed vehicle (not shown).

The towing vehicle typically includes a conventional hydraulic brake system 20 which is actuated when a brake pedal 21 is depressed by a vehicle driver. The brake pedal 21 is coupled to a brake light switch 22. When the brake pedal 21 is depressed, the switch 22 is closed and power from a vehicle power supply 23, shown as a storage battery, is supplied to one or more towing vehicle brake lights 24 and one or more towed vehicle brake lights 25. The vehicle power supply 23 is also connected by a first line 26 through a circuit breaker 27 to the controller 11. A second line 28 connects the brake light side of the brake light switch 22 to the controller 11. Thus, power also is

supplied through the second line 28 to the controller 11 when the brake light switch 22 is closed.

The brake controller 11 is normally operated in an automatic mode wherein the towed vehicle brakes 13 and 14 are automatically actuated by the controller 11 when the towing vehicle brakes are actuated. The automatic mode is activated upon closure of the brake light switch 22. When operating in the automatic mode, the controller 11 senses braking force applied to the towing vehicle and supplies an electric current through line 12 to actuate the towed vehicle brakes. The electric current is directly proportional to the braking force applied to the towing vehicle.

The controller 11 further includes a gain control push-button 32 mounted on a front surface thereof. The gain control push-button 32 allows the vehicle driver to vary the overall gain of the brake control system 10 to compensate for different loads carried in the towed vehicle. For example, if the load in the towed vehicle is increased, it is necessary to increase the braking force applied to the towed vehicle relative to the braking force applied to the towing vehicle. Conversely, if the load in the towed vehicle is decreased, it is necessary to decrease the braking force applied to the towed vehicle relative to the braking force applied to the towing vehicle. By adjusting the gain control, the electric current supplied by the electronic controller 11 to the brake electromagnets

19 can be increased or decreased for any given braking requirement. The controller 11 also includes an array of light emitting diodes (LED's) 33 mounted upon the front surface thereof. The LED's 33 provide a visual indication of the controller gain setting to the vehicle driver. During towed vehicle brake applications, a combination of the LED's 33 are illuminated to display the magnitude of the brake application. The LED's are also illuminated when the gain is adjusted.

The brake controller 11 includes a brake control signal generator 52 (see Figure 2). The generator 52 senses a change in a towing vehicle parameter and automatically generates an analog brake control signal which is proportional to the braking force applied to the towing vehicle. McGrath discloses that various devices can be used for generating the brake control signal. In the preferred embodiment, a deceleration sensor comprising a pendulum device 135 (see Figure 3A) which cooperates with a Hall effect device to generate a voltage proportional to the deceleration of the towing vehicle is used. McGrath teaches (column 12, lines 10-17) that:

> While a pendulum device 135 has been described as the means for sensing a change in the towing vehicle parameters, it will be appreciated that other means can be used to generate the automatic brake control signal. For example, the hydraulic brake fluid pressure can be sensed and used to generate the control signal. A means for sensing the brake fluid pressure is described in U.S. Pat. No. 4,295,687, which is hereby incorporated by reference.

An alternate embodiment of the electronic brake controller of McGrath is illustrated in the schematic diagram shown in Figure 4. In Figure 4, the brake controller is identified with the number 250. The components in Figure 4 which are the same as components shown in Figure 1 have the same numerical designator. The controller 250 is electrically coupled by a data link 251 to an anti-lock brake system 252 (ABS), which is included in the towing vehicle. While a single line is shown for the data link 251 in Figure 4, it will be appreciated that the data link 251 may be a multi-conductor cable or a portion of a data highway.

McGrath provides that the ABS 252 is of a conventional design. The ABS 252 is responsive to data concerning the operation of the towing vehicle to control the hydraulic brake system 20 during impending wheel brake lock-up conditions. The ABS 252 sends data over the data link 251 to the controller 250. McGrath teaches (column 19, lines 27-36) that:

> The controller 250 is responsive to the data to control the towed vehicle brakes 13 and 14 as a function thereof. For example, actuation of the ABS 252 due to an impending wheel lock-up condition of the towing vehicle brakes could cause the brake controller 250 to decrease the braking of the towed vehicle. Other data which can be transmitted from the ABS 252 to the controller 250 can include vehicle speed, vehicle deceleration, brake failure, brake application, and changes in road surface conditions.

U.S. Pat. No. 4,295,687[2] to Becker et al. (Becker), incorporated by reference by McGrath, relates to electric braking systems to be used by a towed vehicle when being pulled by a towing vehicle. Figure 1 is a schematic diagram of an electric brake system incorporating the principles of Becker's invention. The numeral 10 denotes a brake pedal for the conventional brake system for a towing vehicle. The brake system comprises a master cylinder 11 and hydraulic wheel brakes denoted at 12. The electric brake system also includes a pressure transducer assembly 13 which senses the brake system hydraulic pressure and in response thereto develops a corresponding control signal which is utilized by a control system or controller, shown generally at 14. This control system 14 controls electric brakes 15 for a towed vehicle such as a trailer.

In our view, independent claims 11 and 20 are not anticipated by McGrath for the reasons set forth by the appellant in the brief (pp. 4-5). Specifically, McGrath does not disclose providing vehicle brake pressure from the anti-lock braking system 252 to the controller 250 in addition to providing the vehicle speed from the anti-lock braking system 252 to the controller 250 and then utilizing both the vehicle speed and the vehicle braking pressure to determine a trailer brake output signal. In our view, the disclosure of McGrath taken with the incorporated disclosure of Becker teaches that the

[2] Issued October 20, 1981.

vehicle brake pressure would be supplied to McGrath's controller 250 by Becker's pressure transducer assembly 13 which is distinct and separate from McGrath's anti-lock braking system 252. As such claims 11 and 20 are not anticipated by McGrath.

As to the examiner's opinion (answer, p. 6) that "the pressure transducer provided downstream of the master cylinder constitutes part of the anti-lock brake system" we note that there is no evidence in the rejection before us that supports this opinion. The examiner may not, because of doubt that the invention is patentable, resort to speculation and/or unfounded assumption to supply deficiencies in the factual basis for the rejection. See In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968). It is well-settled that under principles of inherency, when a reference is silent about an asserted inherent characteristic, it must be clear that the missing descriptive matter is necessarily present in the thing described in the reference. Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991). As the court stated in In re Oelrich, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981)(quoting Hansgirg v. Kemmer, 102 F.2d 212, 214, 40 USPQ 665, 667 (CCPA 1939)):

> Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient. [Citations omitted.] If, however, the

> disclosure is sufficient to show that the natural result flowing from the operation as taught would result in the performance of the questioned function, it seems to be well settled that the disclosure should be regarded as sufficient.

For the reasons set forth above, the decision of the examiner to reject independent claims 10 and 20, and claims 11 to 19 and 21, 22, 25 and 26 dependent thereon, under 35 U.S.C. § 102(b) is reversed.

Claims 23 and 24 read as follows:

> 23. A trailer brake controller as described in claim 1, wherein said control element includes logic adapted to:
> gradually ramp-up said trailer brake output in response to a gradual ramp-up of said brake pressure input; and
> apply a step-function to said trailer brake output in response to a sudden increase of said brake pressure input.
>
> 24. A trailer brake controller as described in claim 1, wherein said control element includes logic adapted to:
> increase a gain of said trailer brake output in response to an increase in said vehicle speed input.

In our view, dependent claims 23 and 24 are not anticipated by McGrath. McGrath does not disclose that the control element includes logic adapted to (1) gradually ramp-up the trailer brake output in response to a gradual ramp-up of the brake pressure input; and (2) apply a step-function to the trailer brake output in

response to a sudden increase of the brake pressure input. McGrath does not disclose that the control element includes logic adapted to increase a gain of the trailer brake output in response to an increase in the vehicle speed input. As such claims 23 and 24 are not anticipated by McGrath.

With regard to the limitations of claims 23 and 24, the examiner opines (answer, pp. 6-7) that "these [ABS pressure] signals will be transmitted to the controller via line 251, whereupon they will be converted into the trailer brake output signals" and that the "controller will output appropriate trailer brake signals in accordance with current vehicle conditions, one of which is vehicle speed." We once again note that there is no evidence in the rejection before us that supports these opinions. Thus, the examiner has not provided a factual basis to support a conclusion that claims 23 and 24 are anticipated by McGrath.

For the reasons set forth above, the decision of the examiner to reject claims 23 and 24 under 35 U.S.C. § 102(b) is reversed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 11 to 26 under 35 U.S.C. § 102(b) is reversed and the appeal with respect to claims 1 to 10 has been dismissed.

REVERSED

CHARLES E. FRANKFORT
Administrative Patent Judge

JEFFREY V. NASE
Administrative Patent Judge

JENNIFER D. BAHR
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